

Cited Document 2 (JP-UM-A-63-127845)

<Translation of designated parts by the examiner>

Fig. 3 shows a control circuit that controls the movement of the table 14 in the X-axis direction and the movement of the main spindle head 16 in the Y-axis direction. The control circuit is configured with a joystick 31 as a desired moving-direction switch, an X-axial-motor driving control device 32X that drives the X-axial motor 23X according to an X-axial component signal from the joystick 31, and a Y-axial-motor driving control device 32Y that drives the Y-axial motor 23Y according to a Y-axial component signal from the joystick 31.

The joystick 31 has a control lever 42 held returnable to a normally upright state on a control box 41 and inclinable toward a desired direction with respect to the upright state taken as a neutral position, as shown in Figs. 4 and 5. In accordance with the direction and angle of inclination of the control lever 42, a signal is generated that is related to respective axial (X and Y axial) components of directions and speeds. For example, if the control lever 42 is inclined in a direction of +X and -Y, a positive voltage proportional to the inclination angle of the control lever 42 in a +X direction is given to the X-axial-motor driving control circuit 32X and a negative voltage proportional to the inclination angle of


the control lever 42 in a -Y direction is given to the Y-axial-motor driving control circuit 32Y. Incidentally, the control box 41 is provided thereon, besides the control lever 42, with a maximum speed changeover switch 38 capable of selecting a maximum feed rate and a selector switch 43 for selecting whether or not to input axial-component signals from the joystick 31 to the respective axial-motor driving control devices 32A, 32B.

The motor driving control devices 32X, 32Y respectively have direction determining circuits 33X, 33Y that determine a rotating direction of the axial motor 23X, 23Y on the basis of the respective axial-component signals from the joystick 31 and depending upon a positiveness and negativeness of the voltages thereof, speed instructing means 39X, 39Y that instruct for a rotating speed of the axial motor 23X, 23Y on the basis of the axial-component signal from the joystick 31, and control means 40X, 40Y that drive the axial motor 23X, 23Y on the basis of the rotating speed command from the speed instructing means 39X, 39Y and the rotating-direction command from the direction determining circuit 33X, 33Y.

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